Chapter 12

Project Procurement Management

erga

Project Management

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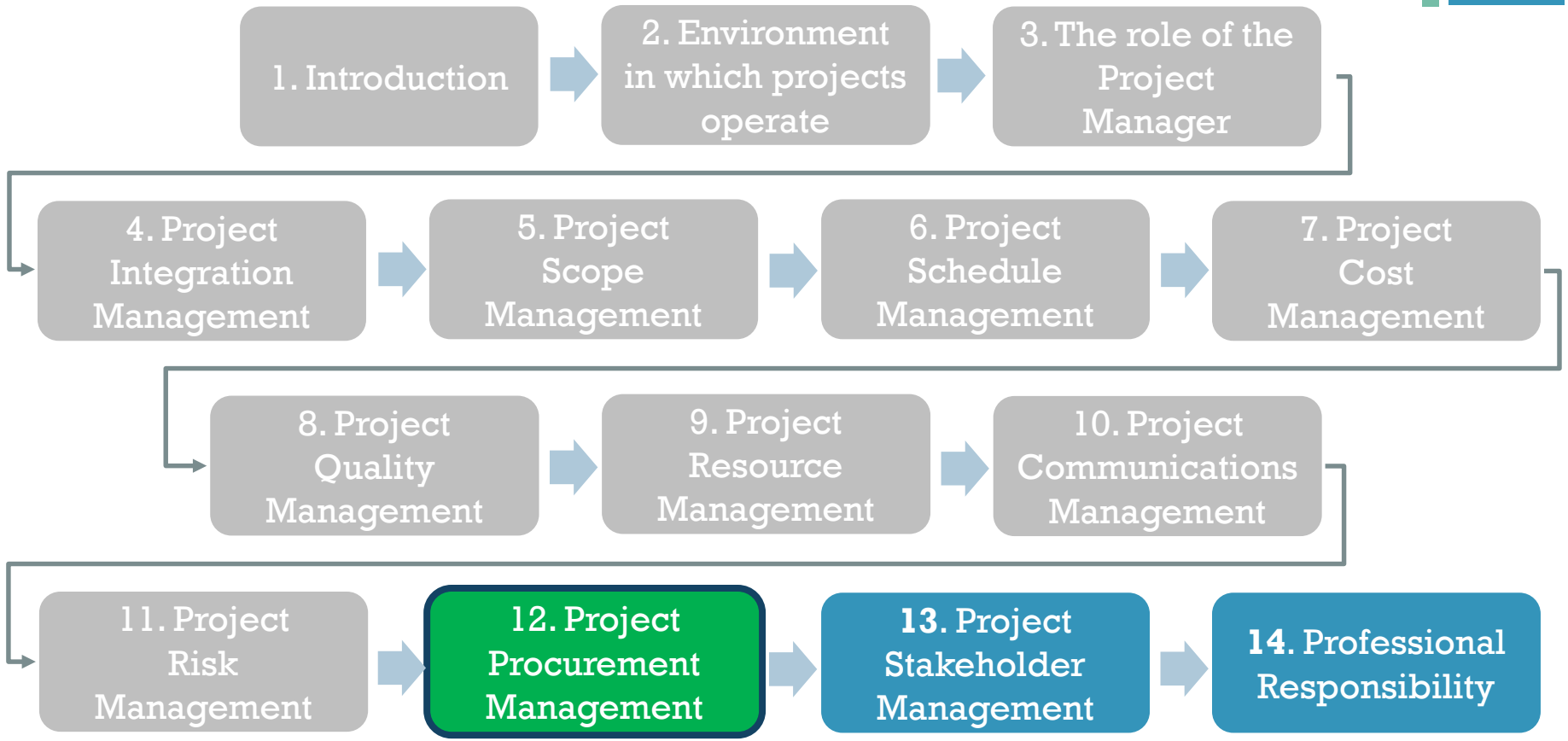
Plan


1. Introduction
2. Environment in which projects operate
3. The role of the Project Manager
4. Project Integration Management
5. Project Scope Management
6. Project Schedule Management
7. Project Cost Management
8. Project Quality Management
9. Project Resource Management
10. Project Communications Management
11. Project Risk Management
12. Project Procurement Management
13. Project Stakeholder Management
14. Professional Responsibility

Plan

- Chapter 12- Project Procurement Management

Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team.

The Objective is to:
Develop and administer
contracts and **purchase orders**
issued by authorized staff

Plan

- **Chapter 12- Project Procurement Management**

  12.1 Plan Procurement Management

  12.2 Conduct Procurements

  12.3 Control Procurements

	Project Management Process Groups				
Knowledge Areas	Initiating	Planning	Executing	Monitoring & Controlling	Closing
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	

Chapter 12- Project Procurement Management Processes

- **12.1 Plan Procurements** (*Planning*): The process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
- **12.2 Conduct Procurements** (*Executing*): The process of obtaining seller responses, selecting a seller, and awarding a contract.
- **12.3 Control Procurements** (*M&C*): The process of managing procurement relationships, monitoring contract performance, making changes and corrections as appropriate, and closing out contracts.

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More than most other project management processes, there can be significant legal obligations and penalties tied to the procurement process. The PM does not have to be a trained expert in procurement management laws and regulations but should be familiar enough with the procurement process to make intelligent decisions regarding contracts and contractual relationships. The PM is typically not authorized to sign legal agreements binding the organization; this is reserved for those who have the authority to do so.

The Project Procurement Management processes involve agreements that describe the relationship between two parties - a buyer and a seller. Agreements can be as simple as the purchase of a defined quantity of labor hours at a specified labor rate, or they can be as complex as multiyear international construction contracts. The contracting approach and the contract itself should reflect the simplicity or complexity of the deliverables or required effort and should be written in a manner that complies with local, national, and international laws regarding contracts.

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A contract should clearly state the deliverables and results expected, including any knowledge transfer from the seller to the buyer. Anything not in the contract cannot be legally enforced. When working internationally, PMs should keep in mind the effect that culture and local law have upon contracts and their enforceability, no matter how clearly a contract is written.

A purchasing contract includes terms and conditions and may incorporate other buyer specifics as to what the seller is to perform or provide. It is the PMT's responsibility to make certain that all procurements meet the specific needs of the project while working with the procurement office to ensure organizational procurement policies are followed.

Depending on the application area, an agreement can be:

- A contract,
- An SLA (service level agreement),
- An understanding,
- An MOA (memorandum of understanding), or a purchase order.

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Most organizations document policies and procedures specifically defining procurement rules and specifying who has authority to sign and administer such agreements on behalf of the organization. Organizations use different names for departments or divisions that deal with procurement, such as purchasing, contracting, procurement, or acquisitions; however, the responsibilities are likely to be similar.

The legally binding nature of a contract means it will be subjected to a more extensive approval process, often involving the legal department. In all cases, the primary focus of the review and approval process is to ensure that the contract adequately describes the products, services, or results that the seller is agreeing to provide, while being in compliance with the laws and regulations regarding procurements.

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A complex project may involve managing multiple contracts simultaneously or in sequence. In such cases, each contract life cycle may begin and end during any phase of the project life cycle. The buyer-seller relationship may exist at many levels on any one project, and between organizations internal to and external to the acquiring organization.

- The seller may be identified as a contractor, vendor, service provider, or supplier.
- The buyer may be the owner of the final product, a subcontractor, the acquiring organization, a service requestor, or the purchaser.
- The seller can be viewed during the contract life cycle first as a bidder, then as the selected source, and then as the contracted supplier or vendor.

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The winning bidder may manage the work as a project. In such cases:

- The buyer becomes the customer to subcontractors, suppliers, and service providers and is therefore a key project stakeholder from the seller's perspective.
- The seller's PMT may be concerned with all the processes involved in performing the work or providing the services.
- Terms and conditions of the contract and the **procurement statement of work (SOW)** become key inputs to many of the seller's management processes. The contract can actually contain the inputs (major deliverables, key milestones, cost objectives) or it can limit the project team's options (for example, buyer approval of staffing decisions is often required on some projects). The procurement SOW may have other names, such as the technical statement of work.
- The seller itself may become a buyer of lower-tiered products, services, and materials from subcontractors and suppliers.

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For smaller organizations or startup companies and those without a purchasing, contracting, or procurement department, the PM may assume the purchasing authority role to negotiate and sign contracts directly (decentralized purchasing). For more mature organizations, the actual procurement and contracting functions will be carried out by a separate department with the specific role to purchase, negotiate, and sign contracts (centralized purchasing).

In international contracting, the legal jurisdictions under which the contracts will be administered are clearly spelled out in the contract. In most cases, the seller is an external contractor who is bound by a formal contractual relationship.

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Trends and emerging practices for Procurement Management include:

- **Advances in tools**. Significant improvement occurred in the development of tools to manage the procurement of a project. *Online tools* for procurement now give the buyers a single point where procurements can be advertised and provide sellers with a single source to find procurement documents and complete them directly online. In the construction/engineering/infrastructure field, the increasing use of the building information model (BIM) saves significant amounts of time and money on projects using it. This approach can substantially reduce construction claims, thereby reducing both costs and schedule.
- **More advanced risk management**. An increasing trend in risk management is to write contracts that accurately allocate specific risks to those entities most capable of managing them. No contractor is capable of managing all the possible major risks on a project. The buyer will be required to accept the risks that the contractors do not have control over. Contracts may specify that risk management be performed as part of the contract.

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- **Changing contracting processes.** There has been a significant growth in megaprojects in the past several years, particularly in the areas of infrastructure development and engineering projects. Multibillion-dollar projects are now common. A large proportion of these involve international contracts with multiple contractors from many countries and are inherently more risky than projects using only local contractors. Increasingly, the contractor works closely with the client in the procurement process to take advantage of discounts through quantity purchases or other special considerations. For these projects the use of internationally recognized standard contract forms is increasing in order to reduce problems and claims during execution…

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- **Logistics and supply chain management.** Because so many large engineering, construction infrastructure projects are done through multiple international contractors, the management of the flow of materials becomes critical to successful completion. For long-lead items, both the manufacture of the items and their transportation to the project site become schedule-drivers. In complex construction projects, long-lead items may require ordering 1 to 2 years in advance or longer. It is possible to begin contracting for these long-lead materials, supplies, or equipment before the final design of the end product itself is completed based on the known requirements identified in the top-level design. The management of the supply chain is an area of increasing emphasis by the contractor's PT. Not only are primary sources of supplies identified early in the project, but secondary, back-up sources are also generally identified…

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- **Technology and stakeholder relations**. Publicly funded projects are under increasing scrutiny. A trend in infrastructure and commercial construction projects is the use of technology including web cameras (*webcams*) to improve stakeholder communications and relations. The progress on the project can be viewed on the Internet by all stakeholders. Video data can also be stored, allowing analysis if a claim arises, and minimizes disputes relating to the construction work on site
- **Trial engagements**. Not every seller is well suited for an organization's environment. Therefore, some projects will engage several candidate sellers for initial deliverables and work products on a paid basis before making the full commitment to a larger portion of the project scope. This accelerates momentum by allowing the buyer to evaluate potential partners, while simultaneously making progress on project work.

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Considerations for tailoring include:

- **Complexity of procurement**. Is there one main procurement or are there multiple procurements at different times with different sellers that add to the complexity of the procurements?
- **Physical location**. Are the buyers and sellers in the same location, or reasonably close, or in different time zones, countries, or continents?
- **Governance and regulatory environment**. Are local laws and regulations regarding procurement activities integrated with the organization's procurement policies? How does this affect contract auditing requirements?
- **Availability of contractors**. Are there available contractors who are capable of performing the work?

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In agile environments, specific sellers may be used to extend the team. This collaborative working relationship can lead to a shared risk procurement model where both the buyer and the seller share in the risk and rewards associated with a project.

Larger projects may use an adaptive approach for some deliverables and a more stable approach for other parts. In these cases, a governing agreement such as a **master services agreement** (MSA) may be used for the overall engagement, with the adaptive work being placed in an appendix or supplement. This allows changes to occur on the adaptive scope without impacting the overall contract.

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Buyer-Seller Relationship

- **Buyer** - The customer.
- **Seller** - Contractor; vendor; supplier external to the performing organization.
- The terms and conditions of the contract become key inputs to many of the seller's processes.

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Contract

✓ A contract represents a mutually binding agreement that obligates the seller to provide the specified products, services or results, and obligates the buyer to provide the monetary or other valuable consideration in return. A contract can also be called an agreement, understanding, undertaking or purchase order.

Important points you should know:

- ✓ Contracts should be formal.
- ✓ It is best to get a contract in writing.
- ✓ A contract is a legally binding document.
- ✓ If something is not specified then it requires a contract change and approval for inclusion.
- ✓ Changes to contracts should be written and signed by all parties.

Who is responsible for creating and managing contracts?

Contract Manager

The contract manager is also called a procurement manager, procurement officer or contract officer

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Contract components

- ✓ Statement of Work (SOW)
- ✓ Deliverables description
- ✓ Performance reporting form / frequency
- ✓ Roles and responsibilities
- ✓ Schedule baseline
- ✓ Pricing
- ✓ Payment terms
- ✓ Penalties
- ✓ Acceptance criteria
- ✓ Warranty
- ✓ Support
- ✓ Insurance & performance bond
- ✓ Change Request (CR) management
- ✓ Termination clauses
- ✓ Alternative dispute resolution (ADR)
- ✓ Intellectual / Property rights
- ✓ Etc…

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Buyer Point of View

- Project needs materials, equipment, consultants, training and many other goods and services.
- Project procurement management is the process of purchasing the products necessary for meeting the needs of the project scope.
- It involves planning, acquiring the products or services from sources, choosing a source, administering the contract, and closing out the contract.
- It can be applied to internal work orders, formal agreements, and contracts between organizational units.
- The PM should interact with a legal, contracting or procurement department to deal with contracts.

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Project Manager's role in Procurement

The PM must be involved in the creation of contracts and he/she must fulfill the following key roles:

- Know the procurement process.
- Understand contract terms and conditions.
- Make sure the contract contains all the project management requirements such as attendance at meeting, reports, actions and communications deemed necessary.
- Help tailor the contract to the unique needs of the project.
- Be involved during contract negotiation process.
- Work with the contract manager to manage changes to the contract.

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Centralized/Decentralized Contracting

- In a centralized contracting environment, there is one procurement department and a procurement manager may handle procurements on many projects. The PM contacts the department when he or she needs help or ask questions.
- In a decentralized contracting environment, a procurement manager is assigned to one project fulltime and reports directly to the PM.
- The form of contracting environment will impact the procurement manager's availability and authority.

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Centralized Contracting

Advantages

- Because they are part of a department that focuses on procurements, centralized contracting will result in procurement managers with higher levels of expertise.
- A procurement department will provide its employees with continuous improvement, training and shared lessons learned.
- Standardized company practices allow efficiency and help improve understanding.
- Individuals in this department have a clearly defined career path in the procurement profession.

Disadvantages

- One procurement manager may work on many projects, so this individual must divide his or her attention among many projects.
- It may be more difficult for the PM to obtain contracting help when needed.

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Decentralized Contracting

Advantages

- The PM has easier access to contracting expertise because the procurement manager is a member of the team.
- The procurement manager is committed & dedicated to the project.

Disadvantages

- There is no "home" department for the procurement manager to return to after the project is completed.
- Lack of continuous improvement, training and shared lessons learned.
- There may not be a career path as a procurement manager in the company.

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Centralized versus Decentralized Contracting

✓ In centralized contracting, a single contract manager handles multiple projects, whereas in decentralized contracting, a contract manager is assigned to a project full time and reports to the PM.

Centralized

Advantages	Disadvantages
Increased expertise in contracting	Difficult to get contracting help as the person may be busy on multiple projects
Standardized company practices	

Decentralized

Advantages	Disadvantages
More loyalty to the project	Duplicate of expertise
Easier access to contracting experience	Less standardization of contracting practices from one project to another

12.1 Plan Procurement Management

Documenting project procurement decisions, specifying the approach and identifying potential sellers.

Identifies the project needs to be acquired from outside of the project organization

Specify how and when to acquire the needed product

12.1 Plan Procurement Management

Inputs

1. Project charter
2. Business documents
   - Business documents
   - Benefits management plan
3. Project management plan
4. Project documents
5. Enterprise environmental factors
6. Organizational process assets

Tools & Techniques

1. Expert Judgment
2. Data gathering
   - Market research
3. Data analysis
   - Make-or-buy analysis
4. Source selection analysis
5. Meetings

Outputs

1. Procurement management plan
2. Procurement strategy
3. Bid documents
4. Procurement statement of work
5. Source selection criteria
6. Make-or-buy decisions
7. Independent cost estimates
8. Change requests
9. Project documents updates
10. Organizational process assets updates

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3. Project Management Plan

PMP components include:

- **Scope management plan**. The scope management plan describes how the scope of work by the contractors will be managed through the execution phase of the project.
- **Quality management plan**. The quality management plan contains the applicable industry standards and codes the project is required to follow. This information is used in bidding documents such as the RFP and will eventually be referenced in the contract. This information may be used in supplier prequalification or as part of the selection criteria.
- **Resource management plan**. The resource management plan has information on which resources will be purchased or leased, along with any assumptions or constraints that would influence the procurement.
- **Scope baseline**. The scope baseline contains the scope statement, WBS, and WBS dictionary. Early in the project, the project scope may still be evolving. The elements of the scope that are known are used to develop the statement of work (SOW) and the terms of reference (TOR).

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4. Project documents

Project documents that can be considered as inputs include:

- **Milestone list.**
- **Project team assignments.**
- **Requirements documentation**. It may include:
  - Technical requirements that the seller is required to satisfy,
  - Requirements with contractual and legal implications that may include health, safety, security, performance, environmental, insurance, intellectual property rights, equal employment opportunity, licenses, permits, and other nontechnical requirements.
- **Requirements traceability matrix**.
- **Resource requirements**. They contain information on specific needs such as team and physical resources that may need to be acquired.
- **Risk register.**
- **Stakeholder register.**

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5. Enterprise Environmental Factors

Include, but are not limited to:

- Marketplace conditions;
- Products, services, and results that are available in the marketplace;
- Sellers, including their past performance or reputation;
- Typical terms and conditions for products, services, and results or for the specific industry;
- Unique local requirements, such as regulatory requirements for local labor or sellers;
- Legal advice regarding procurements;
- Contract management systems, including procedures for contract change control;
- Established multi-tier supplier system of prequalified sellers based on prior experience;
- Financial accounting and contract payments system.

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6. Organizational process assets

Include, but are not limited to:

- **Preapproved seller lists**. Lists of sellers that have been properly vetted can streamline the steps needed to advertise the opportunity and shorten the timeline for the seller selection process.
- **Formal procurement policies, procedures, and guidelines**. Most organizations have formal procurement policies and buying organizations. When such procurement support is not available, the project team should supply both the resources and the expertise to perform such procurement activities.
- **Contract types**. All legal contractual relationships generally fall into one of these broad families:
  - **Fixed-Price (FP)**
  - **Cost-Reimbursable (CR)**.
  - **Time and Materials (T&M)** contract.

In practice, it is not unusual to combine one or more types into a single procurement.

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6. Organizational process assets

❖ **Contract types**

Fixed-price contracts.

This category of contracts involves setting a fixed total price for a defined product, service, or result to be provided. These contracts should be used when the requirements are well defined and no significant changes to the scope are expected. Types of fixed-price contract include:

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6. Organizational process assets

- **Contract types (cont'd)** **Fixed Price**

Firm Fixed Price (FFP)

The Price of contract is pre-set. Can not change.
The Product is clearly specified by the Buyer
The buyer has the least cost risk, provided the buyer has a completely defined scope.
Change in scope leads to change in price.
Cost increase for performing the effort is supported by the Seller

Risks are managed and supported by the Seller

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6. Organizational process assets

❖ **Contract types (cont'd)** **Fixed Price**

Fixed Price Incentive Fee (FPIF)

The Max Price of contract is pre-set. Can not change.

A conditional financial incentive is defined to allow for better performance.

The Final Price is determined at the completion of the work according to the performance of the Seller.

The Product is clearly specified by the Buyer

Change in scope leads to change in price.

Cost increase for performing the effort is supported by the Seller

Agreed metrics on cost, schedule and or technical performance

Example: For every month early the project is finished, an additional 1000$ is paid to the seller

Risks are managed and supported by the Seller

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6. Organizational process assets

❖ **Contract types (cont'd) Fixed Price**

Fixed Price With Economic Price Adjustment (FPEPA)

The Max Price of contract is pre-set. Can not change.

A special provision for "agreed" final adjustment of the Price.

The Product is clearly specified by the Buyer

Change in scope leads to change in price.

Cost increase (outside of the agreed adjustment) for performing the effort is supported by the Seller

Agreed adjustment to cover inflation and/or cost change during the execution period

Example: Contract =1,100$ but a price increase is allowed in 2 years

Risks are managed and supported (outside of the agreed adjustment) by the Seller

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6. Organizational process assets

❖ **Contract types (cont'd)** **Fixed Price**

Purchase Order

A purchase order is the simplest type of fixed price contract
This type of contract is normally unilateral instead of bilateral
It is signed by the buyer (one party only)
Usually used for simple commodity procurements

Example: Contract to purchase 30 linear meters of wood at 40$ per meter.

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6. Organizational process assets (cont'd)

❖ **Contract types (cont'd)**

***Cost-reimbursable contracts*.**

This category of contract involves payments (cost reimbursements) to the seller for all legitimate actual costs incurred for completed work, plus a fee representing seller profit. This type should be used if the scope of work is expected to change significantly during the execution of the contract. Variations can include:

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6. Organizational process assets

❖ **Contract types (cont'd)** **Cost Reimbursable**

Cost Plus Fixed Fee (CPFF)

The Price of contract is "Allowable incurred cost + fixed fee".

The fixed fee is generally a % of the original cost estimate and DO NOT change with the performance of the Supplier.

The fixed fee is paid for the completed work only.

The Product is NOT necessary clearly specified by the Buyer

Change in scope leads to change in price and in fee.

When Scope not well defined or High risk project

Example: Contract = Cost + Fee of 1000$

Risks are managed and supported as COST by the Seller, paid by Buyer

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Input → **Tools & Techniques** → Output

6. Organizational process assets

❖ **Contract types (cont'd)** **Cost Reimbursable**

Cost Plus Incentive Fee (CPIF)

The Price of contract is "Allowable incurred cost + incentive fee".

A conditional financial incentive is defined to allow for better performance.

The Product is generally clearly specified by the Buyer

Change in scope leads to change in price and in fee.

When the final cost is different from the Estimated cost, the buyer & Seller can share the difference according to pre-agreed formula.

Risks are managed and supported as COST by the Seller paid by Buyer

Example: Buyer and seller share any cost savings or cost overruns at 80% to buyer and 20% to seller.

12.1 Plan Procurement Management

6. Organizational process assets (cont'd)

❖ **Contract types (cont'd)**

- *Cost plus incentive fee (CPIF).* The seller is reimbursed for all allowable costs for performing the contract work and receives a predetermined incentive fee based on achieving certain performance objectives as set forth in the contract. In CPIF contracts, if the final costs are less or greater than the original estimated costs, then both the buyer and seller share costs from the departures based upon a pre-negotiated cost-sharing formula, for example, an 80/20 split over/under target costs based on the actual performance of the seller.

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6. Organizational process assets

❖ **Contract types (cont'd)** **Cost Reimbursable**

Cost Plus Award Fee (CPAF)

The Price of contract is "Allowable incurred cost + variable fee".

A majority of the variable fee is based solely on **subjective performance criteria** determined by the buyer (but always mentioned in the contract).

The Product is generally clearly specified by the Buyer

Change in scope leads to change in price and in fee.

Example: Contract = Cost + Award fee for the performance exceeds the planned level by more than 15 percent, an additional 5,000$ is awarded to the seller with a maximum award of 15,000$

Risks are managed and supported as COST by the Seller paid by Buyer

12.1 Plan Procurement Management

6. Organizational process assets

- **Contract types (cont'd) Cost Reimbursable**

Cost Plus Fee (CPF) or Percentage of Costs (CPPC)

The Price of contract is "Allowable incurred cost + % of cost".

The fixed fee is generally a % of the cost and DO NOT change with the performance of the Supplier.

The % of cost = fee is paid for the completed work only.

The Product is NOT necessary clearly specified by the Buyer

Change in scope leads to change in price and in fee.

When Scope not well defined or High risk project

Example: Contract = Cost + 10% of costs as fee

Risks are managed and supported as COST by the Seller paid by buyer

12.1 Plan Procurement Management

6. Organizational process assets (cont'd)

❖ **Contract types (cont'd)**

Time and material contracts (T&M).

Time and material contracts (also called time and means) are a hybrid type of contractual arrangement with aspects of both cost-reimbursable and fixed-price contracts. They are often used for staff augmentation, acquisition of experts, and any outside support when a precise statement of work cannot be quickly prescribed.

12.1 Plan Procurement Management

6. Organizational process assets

- **Contract types (cont'd) Time and Material (T&M) or Unit Price**

Mix between Fixed & Cost-Reimbursed type (CPAF)

The Price of contract is "Fixed unit price * variable quantity".
The fixed unit price includes the benefit of the Seller.
The quantity may be Open-ended (with no limit) or limited by a maximum value during limited period of time.
The Product & Quantity are clearly specified by the Buyer
Change in scope does not occur.

Risks are managed and supported by the Buyer.

12.1 Plan Procurement Management

Input → **Tools & Techniques** → Output

6. Organizational process assets

- Contract Types:
  - CR: Cost reimbursable
  - T&M: Time and Material
  - FP: Fixed Price
  - CPFF: Cost Plus Fixed Fee
  - CPPC: Cost Plus % of Cost
  - CPIF: Cost Plus Incentive Fee
  - CPAF: Cost Plus Award Fee
  - FFP: Firm Fixed Price
  - FPIF: Fixed Price Incentive Fee
  - FPEPA: Fixed Price Economic Price Adj.

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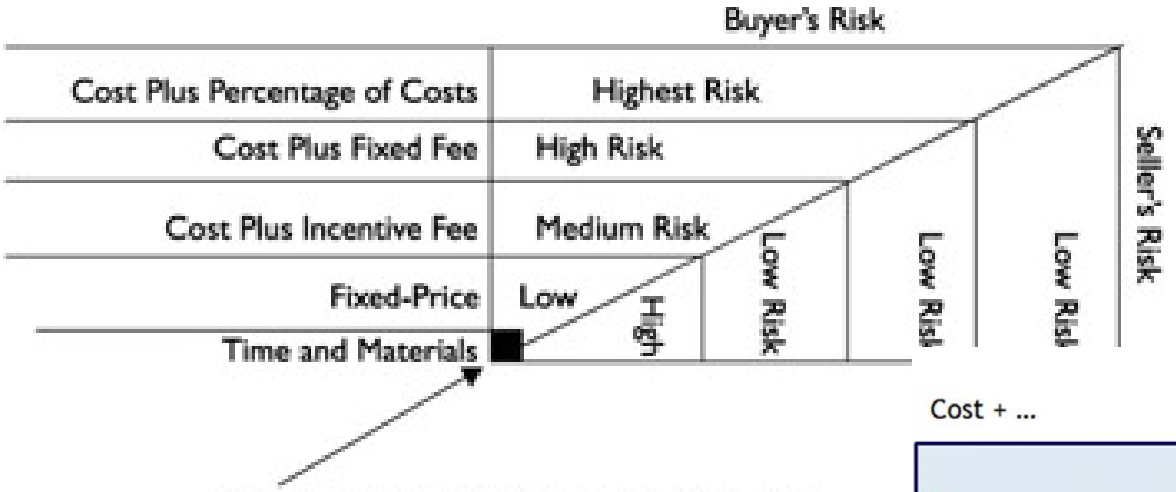
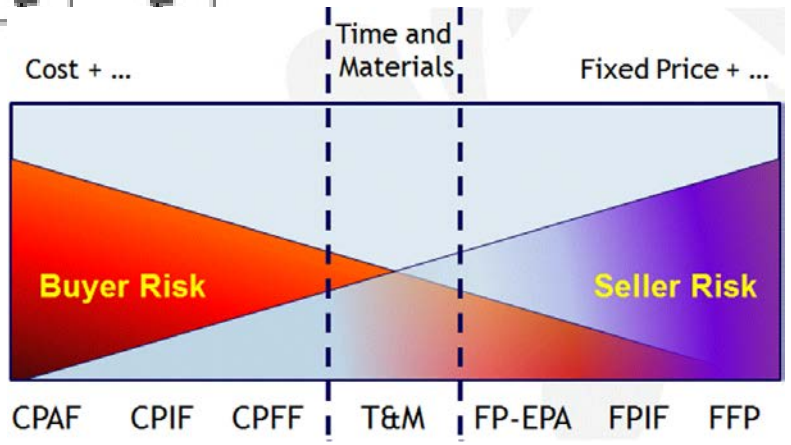
Input → **Tools & Techniques** → Output

6. Organizational process assets

- **Contract types (cont'd) Risk level between Buyer and Seller**





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6. Organizational process assets

❖ **Contract types (cont'd)**

	Advantages	Disadvantages
Cost Reimbursable	Less costly than fixed price because the seller does not have to account for their risk	Requires auditing all the seller invoices and thus increases buyer efforts
	Such contracts are simple to draft.	Seller has less incentive to control cost thus these contracts are inefficient, i.e. riskier for the buyer
Fixed Price	Seller has strong incentive to control cost thus contracts are efficient.	Seller may under quote initially and later try to make high margins on change requests
	Requires less effort by buyer to manage contracts as cost risk is with the seller.	Not having a proper SOW can result in seller not providing some of the deliverables
Time & Material	Easy to create	Seller has no incentive to control costs
	Good for resource augmentation assignments where cost risk is shared by buyer and seller	Requires monitoring of daily output
		Good for small projects only

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3. Data analysis

- **Make-or-Buy analysis.** General management technique used to determine whether an organization should make or perform a particular product or service inside the organization or buy from someone else.
  - The cost involved in managing the procurement should be considered as part of the decision, in addition to the direct costs of the project or service to be procured.
  - Often involves financial analysis.

Reason to Make	Reasons to Buy
Less costly	Less costly
Use in-house skills	In-house skills aren't available or don't exist
Control of work	Small volume of work
Control of intellectual property	More efficient
Learn new skills	Transfer risks
Available Staff	Available vendor
Focus on core project work	Allows project team to focus on other work items

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3. Data analysis (cont'd)

❖ **Make-or-Buy analysis (cont'd)**

Factors to consider in the make-or-buy decision include the organization's current resource allocation and their skills and abilities, the need for specialized expertise, the desire to not expand permanent employment obligations, and the need for independent expertise. It also includes evaluating the risks involved with each make-or-buy decision.

Make-or-buy analysis may use:

- payback period (PBP),
- return on investment (ROI),
- internal rate of return (IRR),
- discounted cash flow (DCF),
- net present value (NPV),
- benefit/cost analysis (BCA),

or other techniques in order to decide whether to include something as part of the project or purchase it externally.

12.1 Plan Procurement Management

3. Data analysis (cont'd)

❖ **Make-or-Buy analysis (cont'd)**

Sample Question 1

You are trying to decide whether to lease or buy an item for your project. The daily lease cost is USD 120. To purchase the item, the investment cost is USD 1000 and the daily cost is USD 20. How long will it take for the lease cost to be the same as the purchase cost?

Answer:

Let D equal the number of days when the purchase and lease costs are equal.

$120D = $1000 + $20D

$120D – $20D = $1000

$100D = 1000$

D = $1000 /$100

D = 10

The leased cost will be the same as the purchase cost after ten days.

12.1 Plan Procurement Management

3. Data analysis (cont'd)

❖ **Make-or-Buy analysis (cont'd)**

Sample Question 2

Assume you can lease an item you need for a project for $800/day; to purchase the item, the cost is $12,000 plus a daily operational cost of $400/day.
How long will it take for the purchase cost to be the same as the lease cost?

Answer:

Set up an equation so both options, purchase and lease, are equal.
In this example, use the following equation; let *d* be the number of days to use the item:
$12,000 + $400d = $800d
Subtracting $400d from both sides, you get:
$12,000 = $400d
Dividing both sides by $400, you get: d = 30

If you need the item for more than 30 days, it is more economical to purchase it.

12.1 Plan Procurement Management

4. Source selection analysis

It is necessary to review the prioritization of the competing demands for the project before deciding on the selection method. Since competitive selection methods may require sellers to invest a large amount of time and resources upfront, it is a good practice to include the evaluation method in the procurement documents so bidders know how they will be evaluated. Commonly used selection methods include the following:

- **Least cost**. The least cost method may be appropriate for procurements of a standard or routine nature where well-established practices and standards exist and from which a specific and well-defined outcome is expected, which can be executed at different costs.
- **Qualifications only**. The qualifications only selection method applies when the time and cost of a full selection process would not make sense because the value of the procurement is relatively small. The buyer establishes a short list and selects the bidder with the best credibility, qualifications, experience, expertise, areas of specialization, and references…

12.1 Plan Procurement Management

4. Source selection analysis (cont'd)

- …
- **Quality and cost-based**. The quality and cost-based method allows cost to be included as a factor in the seller selection process. In general, when risk and/or uncertainty are greater for the project, quality should be a key element when compared to cost.
- **Sole source**. The buyer asks a specific seller to prepare technical and financial proposals, which are then negotiated. Since there is no competition, this method is acceptable only when properly justified and should be viewed as an exception.
- **Fixed budget**. The fixed-budget method requires disclosing the available budget to invited sellers in the RFP and selecting the highest-ranking technical proposal within the budget. Because sellers are subject to a cost constraint, they will adapt the scope and quality of their offer to that budget. The buyer should therefore ensure that the budget is compatible with the SOW and that the seller will be able to perform the tasks within the budget. This method is appropriate only when the SOW is precisely defined, no changes are anticipated, and the budget is fixed and cannot be exceeded.

12.1 Plan Procurement Management

1. Procurement Management Plan

The procurement management plan can include guidance for:

- ✓ How procurement will be coordinated with other project aspects, such as project schedule development and control processes;
- ✓ Timetable of key procurement activities;
- ✓ Procurement metrics to be used to manage contracts;
- ✓ Stakeholder roles and responsibilities related to procurement, including authority and constraints of the PT when the performing organization has a procurement department;
- ✓ Constraints and assumptions that could affect planned procurements;
- ✓ The legal jurisdiction and the currency in which payments will be made;
- ✓ Determination of whether independent estimates will be used and whether they are needed as evaluation criteria;
- ✓ Risk management issues including identifying requirements for performance bonds or insurance contracts to mitigate some forms of project risk;
- ✓ Prequalified sellers, if any, to be used.

12.1 Plan Procurement Management

2. Procurement Strategy

Once the make-or-buy analysis is complete and the decision is made to acquire from outside the project, a procurement strategy should be identified.

- The objective of the procurement strategy is to determine the project delivery method, the type of legally binding agreement(s), and how the procurement will advance through the procurement phases.
- **Contract payment types**. Contract payment types are separate from the project delivery methods and are coordinated with the buying organization's internal financial systems. They include but are not limited to these contract types plus variations: lump sum, firm fixed price, cost plus award fees, cost plus incentive fees, time and materials, target cost, and others…

12.1 Plan Procurement Management

2. Procurement Strategy (cont'd)

- …
- **Delivery methods**. Delivery methods are different for professional services versus construction projects.
  - For professional services, delivery methods include: buyer/services provider with no subcontracting, buyer/services provider with subcontracting allowed, joint venture between buyer and services provider, and buyer/services provider acts as the representative.
  - For industrial or commercial construction, project delivery methods include but are not limited to: turnkey, design build (DB), design bid build (DBB), design build operate (DBO), build own operate transfer (BOOT), and others…

12.1 Plan Procurement Management

2. Procurement Strategy (cont'd)

- …
- **Procurement phases**. The procurement strategy can also include information on procurement phases:
  - Sequencing or phasing of the procurement, a description of each phase and the specific objectives of each phase;
  - Procurement performance indicators and milestones to be used in monitoring;
  - Criteria for moving from phase to phase;
  - Monitoring and evaluation plan for tracking progress;
  - Process for knowledge transfer for use in subsequent phases.

12.1 Plan Procurement Management

3. Bid documents

Bid documents are used to solicit proposals from prospective sellers. Terms such as **bid, tender, or quotation** are generally used when the seller selection decision is based on price while a term such as **proposal** is generally used when other considerations such as technical capability or technical approach are the most important. The bidding documents can include:

- **Request for information (RFI)**. An RFI is used when more information on the goods and services to be acquired is needed from the sellers. It will typically be followed by an RFQ or RFP.
- **Request for quotation (RFQ)**. An RFQ is commonly used when more information is needed on how vendors would satisfy the requirements and/or how much it will cost.
- **Request for proposal (RFP)**. An RFP is used when there is a problem in the project and the solution is not easy to determine. This is the most formal of the "request for" documents and has strict procurement rules for content, timeline, and seller responses.

12.1 Plan Procurement Management

3. Bid documents (cont'd)

The buyer structures procurement documents to facilitate an accurate and complete response from each prospective seller and to facilitate easy evaluation of the responses. These documents include a description of the desired form of the response, the relevant procurement SOW, and any required contractual provisions.

- Procurement documents are required to be sufficiently detailed to ensure consistent, appropriate responses, but flexible enough to allow consideration of any seller suggestions for better ways to satisfy the same requirements.

12.1 Plan Procurement Management

3. Bid documents (cont'd)

Document	Purpose
Bid	From seller to Buyer. Price is the determining factor in the decision-making process
Quotation	From seller to Buyer. Price is the determining factor in the decision-making process
Proposal	From seller to Buyer. Other factors such as skill sets, reputation, ideas for the project solution, may be used in the decision-making process
Invitation for Bid (IFB)	From buyer to seller. Requests the seller to provide a price for the procured product or service
Request for quote (RFQ)	From buyer to seller. Requests the seller to provide a price for the procured product or service
Request for proposal (RFP)	From buyer to seller. Requests the seller to provide a proposal to complete and to provide the procured product or service

12.1 Plan Procurement Management

3. Bid documents (cont'd)

Document	Purpose
Non-Disclosure Agreement (confidentiality)	This is an agreement between the buyer and any prospective sellers stating what information or documents they will hold confidential and control, and who in their organization will gain access to the confidential information.
Standard Contract	Companies frequently have standard, pre-authorized contracts for the purchase of goods or services. These types of standard contracts need no further legal review if used as they are.
Special Provisions (Special Conditions)	The PM should determine what needs to be added, changed or removed from the standard provisions, so that the resulting contract addresses the particular needs of the project.
Letter of Intent	NOT a contract but a letter without legal binding, that says the buyer intends to hire the seller.
Privity	Contractual relationship. Example: Company A hires company B to do some work for them. Company B subcontracts to company C. The PM for A is at the job site and tells company C to stop work. Generally, does company C have to listen? No

12.1 Plan Procurement Management

4. Procurement Statements Of Work (SOW)

The SOW for each procurement is developed from the project scope baseline and defines only that portion that is to be included within the related contract.

- ***The SOW describes the procurement item in sufficient detail to allow prospective sellers to determine if they are capable of providing the products, services, or results***. Information included can include specifications, quantity desired, quality levels, performance data, period of performance, work location,
- The SOW should be clear, complete, and concise. It includes a description of any collateral services required, such as performance reporting or post-project operational support for the procured item.
- The SOW can be revised as required as it moves through the procurement process until incorporated into a signed agreement.

12.1 Plan Procurement Management

4. Procurement Statements of Work (cont'd)

The phrase ***Terms Of Reference*** **(TOR)** is sometimes used when contracting for services. Similar to the procurement SOW, a TOR typically includes these elements:

- ✓ Tasks the contractor is required to perform as well as specified coordination requirements;
- ✓ Standards the contractor will fulfill that are applicable to the project;
- ✓ Data that needs to be submitted for approval;
- ✓ Detailed list of all data and services that will be provided to the contractor by the buyer for use in performing the contract, if applicable;
- ✓ Definition of the schedule for initial submission and the review/approval time required.

12.1 Plan Procurement Management

5. Source Selection Criteria

Source Selection criteria are included in the procurement documents to give the seller an understanding of the buyer's needs.

During Select sellers, this criteria become the basis by which the bids or proposal(s) are evaluated by the buyer.

Seller types:

- Single source - Contract directly with preferred seller or preferred group of sellers.
- Sole source (Monopoly) - There is only 1 seller (ex. Company owns the Patent)
- Oligopoly – A market structure in which a small number of firms has the large majority of market share. An **oligopoly** is similar to a monopoly, except that rather than one firm, two or more firms dominate the market.

Suggested Selection Criteria:	Understanding of buyer need	Past performance	References
	Overall or life-cycle cost	Warranty	Intellectual Property rights
	Financial capacity	Technical approach	Etc…
	Business Size	Risk Management	

12.1 Plan Procurement Management

5. Source Selection Criteria (cont'd)

In choosing evaluation criteria, the buyer seeks to ensure that the proposal selected will offer the best quality for the services required.

The source selection criteria may include:

- Capability and capacity;
- Product cost and life cycle cost;
- Delivery dates;
- Technical expertise and approach;
- Specific relevant experience;
- Adequacy of the proposed approach and work plan in responding to the SOW;
- Key staff's qualifications, availability, and competence;
- Financial stability of the firm;
- Management experience;
- Suitability of the knowledge transfer program, including training.

12.1 Plan Procurement Management

6. Make-or-buy decisions

A make-or-buy analysis results in a decision as to whether particular work can best be accomplished by the project team or needs to be purchased from outside sources.

7. Independent cost estimates

For large procurements, the procuring organization may elect to either prepare its own independent estimate or have a cost estimate prepared by an outside professional estimator to serve as a benchmark on proposed responses.

- Significant differences in cost estimates can be an indication that the procurement SOW was deficient or ambiguous, or that the prospective sellers either misunderstood or failed to respond fully to the procurement SOW.

12.1 Plan Procurement Management

10. Organizational process assets updates (cont'd)

Table 12-1 is a representative list of common types of documents used in procurements and some of their contents.

Table 12-1. Comparison of Procurement Documentation

Procurement Management Plan	Procurement Strategy	Statement of Work	Bid Documents
How procurement work will be coordinated and integrated with other project work, particularly with resources, schedule, and budget	Procurement delivery methods	Description of the procurement item	Request for information (RFI), Request for quote (RFQ), Request for proposal (RFP)
Timetable for key procurement activities	Type of agreements	Specifications, quality requirements and performance metrics	
Procurement metrics to manage the contract	Procurement phases	Description of collateral services required	
Responsibilities of all stakeholders		Acceptance methods and criteria	
Procurement assumptions and constraints		Performance data and other reports required	
Legal jurisdiction and currency used for payment		Quality	
Information on independent estimates		Period and place of performance	
Risk management issues		Currency; payment schedule	
Prequalified sellers, if applicable		Warranty	

12.2 Conduct Procurements

Obtaining seller responses, selecting a seller, and awarding a contract.

- In this process, the team will receive bids or proposals and will apply pre-defined selection criteria to select one or more sellers who are qualified to perform the work.

12.2 Conduct Procurements

Inputs

1. Project management plan
2. Project documents
   - Lessons learned register.
   - Project schedule.
   - Requirements documentation:
   - Risk register.
   - Stakeholder register.
3. Procurement documentation
4. Seller proposals
5. Enterprise environmental factors
6. Organizational process assets

Tools & Techniques

1. Expert judgment
2. Advertising
3. Bidder conferences
4. Data analysis
   - Proposal evaluation
5. Interpersonal and team skills
   - Negotiation

Outputs

1. Selected sellers
2. Agreements
3. Change requests
4. PMP updates
5. Project documents updates
6. Organizational process assets updates

12.1 Plan Procurement Management

3. Procurement documentation

Procurement documentation provides a written record used in reaching the legal agreement, and may include older documents predating the current project. Procurement documentation can include:

- **Bid documents**. Procurement documents include the RFI, RFP, RFQ, or other documents sent to sellers so they can develop a bid response.
- **Procurement statement of work**. The (SOW) provides sellers with a clearly stated set of goals, requirements, and outcomes from which they can provide a quantifiable response.
- **Independent cost estimates**. Independent cost estimates are developed either internally or by using external resources and provide a reasonableness check against the proposals submitted by bidders.
- **Source selection criteria**. These criteria describe how bidder proposals will be evaluated, including evaluation criteria and weights. For risk mitigation, the buyer may decide to sign agreements with more than one seller to mitigate damage caused by a single seller having problems that impact the overall project.

12.1 Plan Procurement Management

4. Seller proposals

Seller proposals, prepared in response to a procurement document package, form the basic information that will be used by an evaluation body to select one or more successful bidders (sellers).

- If the seller is going to submit a price proposal, good practice is to require that it be separate from the technical proposal.
- The evaluation body reviews each submitted proposal according to the source selection criteria and selects the seller that can best satisfy the buying organization's requirements.

12.2 Conduct Procurements

2. Advertising

Advertising is communicating with users or potential users of a product, service, or result.

- Existing lists of potential sellers often can be expanded by placing advertisements in general circulation publications such as selected newspapers or in specialty trade publications.
- Most government jurisdictions require public advertising or online posting of pending government contracts.

3. Bidder conferences

Bidder conferences (also called contractor conferences, vendor conferences, and pre-bid conferences) are meetings between the buyer and prospective sellers prior to proposal submittal. They are used to ensure that all prospective bidders have a clear and common understanding of the procurement and no bidders receive preferential treatment.

12.2 Conduct Procurements

5. Interpersonal and team skills

❖ **Negotiation**

Negotiation is a discussion aimed at reaching an agreement. Procurement negotiation clarifies the structure, rights, and obligations of the parties and other terms of the purchases so that mutual agreement can be reached prior to signing the contract. Final document language reflects all agreements reached.

- Negotiation concludes with a signed contract document or other formal agreement that can be executed by both buyer and seller.

The negotiation should be led by a member of the procurement team that has the authority to sign contracts. The PM and other members of the PMT may be present during negotiation to provide assistance as needed.(win-win negotiation)

12.2 Conduct Procurements

5. Interpersonal and team skills (cont'd)

- **Negotiation - Tactics:**
  - **Attacks**
  - **Personal insults**
  - **Good guy/bad guy**
  - **Deadline**: we need to leave in 10 min, what do you say about the offer?
  - **Lying**
  - **Limited authority**: I can't agree to this; I was only authorized for that.
  - **Missing man**: My boss is not here.
  - **Fair and reasonable**: let's be fair and reasonable, accept the offer as it is.
  - **Delay**: let's postpone it for later.
  - **Extreme demands**: as the buyer, you have to do this and that; it's not our responsibility.
  - **Withdrawal**: physical or emotional withdrawal.
  - **Fait accompli**: this is a done deal.

12.2 Conduct Procurements

5. Interpersonal and team skills

- **Negotiation**

Main Items include but are not limited to:

- Responsibilities
- Authority
- Applicable Law
- Technical and business management approaches
- Proprietary rights
- Contract financing
- Technical solutions
- Overall Schedule, payment and price

12.2 Conduct Procurements

1. Selected Sellers

The selected sellers are those who have been judged to be in a competitive range based on the outcome of the proposal or bid evaluation.

Final approval of complex, high-value, high-risk procurements will generally require organizational senior management approval prior to award.

12.2 Conduct Procurements

2. Agreements

A contract is a mutually binding agreement that obligates the seller to provide the specified products, services, or results; obligates the buyer to compensate the seller; and represents a legal relationship that is subject to remedy in the courts.

The major components:

- Procurement statement of work or major deliverables;
- Schedule, milestones, or date by which a schedule is required;
- Performance reporting;
- Pricing and payment terms;
- Inspection, quality, and acceptance criteria;
- Warranty and future product support;
- Incentives and penalties;
- Insurance and performance bonds;
- Subordinate subcontractor approvals;
- General terms and conditions;
- Change request handling; and
- Termination clause and alternative dispute resolution mechanisms.

12.2 Conduct Procurements

4. Project Management Plan Updates:

Components of the plan that may get updated include:

- Requirements management plan.
- Quality management plan.
- Communications management plan.
- Risk management plan.
- Procurement management plan.
- Cost baseline.
- Scope baseline.
- Schedule baseline.

12.2 Conduct Procurements

5. Project Document Updates:

Documents that may get updated include:

- **Lessons learned register**.
- **Requirements documentation**:
  - Technical requirements that the seller is required to satisfy,
  - Requirements with contractual and legal implications that may include health, safety, security, performance, environmental, insurance, intellectual property rights, equal employment opportunity, licenses, permits, and other nontechnical requirements.
- **Requirements traceability matrix**. As sellers are incorporated into the project's plan, the requirements register and the traceability matrix may change depending on the capabilities of the specific seller…

12.2 Conduct Procurements

5. Project Document Updates (cont'd)

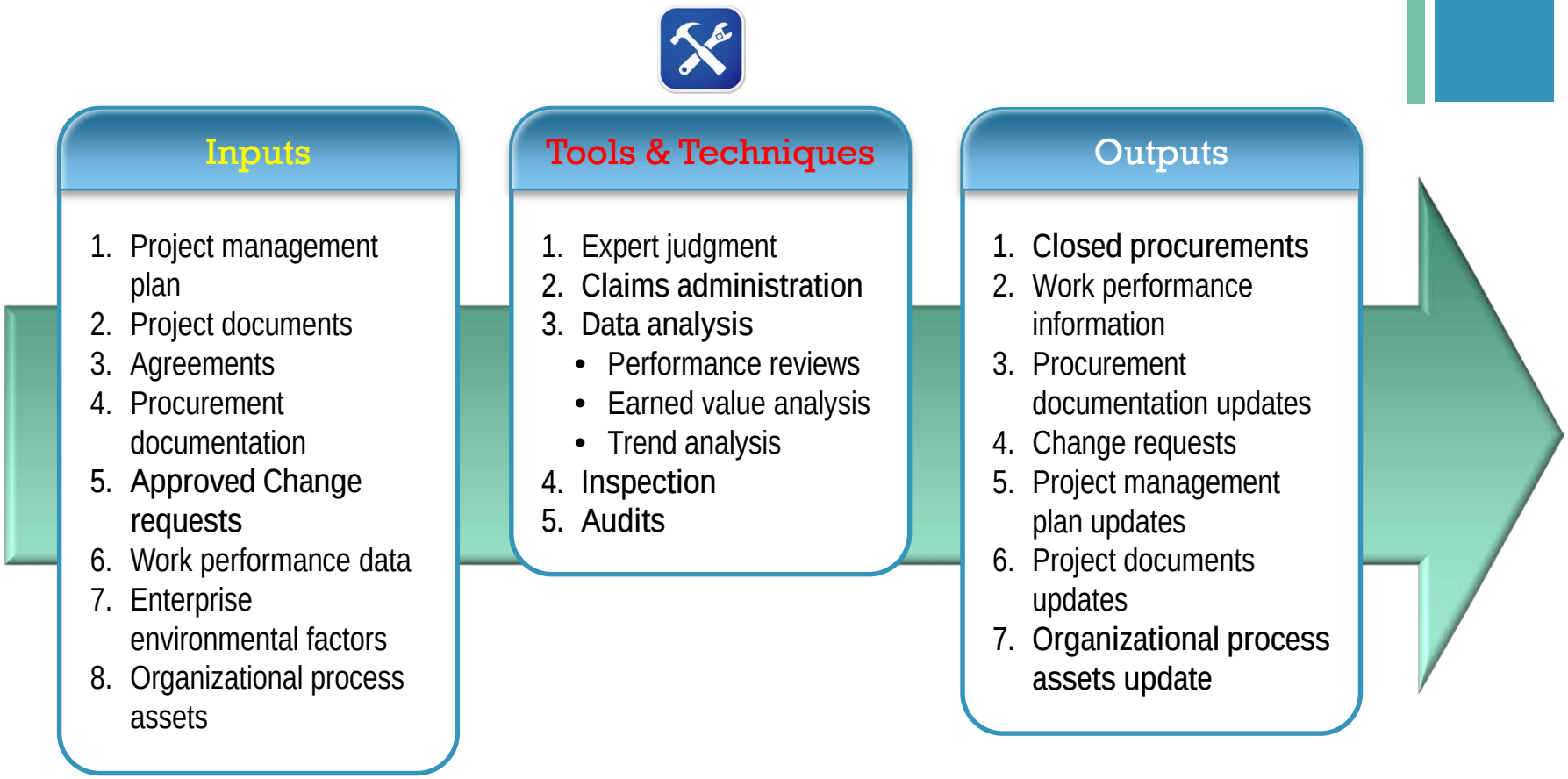
- **Resource calendars**. Schedule resource calendars may need to be updated depending on the availabilities of the sellers.
- **Risk register**. Each approved seller comes with its own unique set of risks, depending on the seller's organization, the duration of the contract, the external environment, the project delivery method, the type of contracting vehicle chosen, and the final agreed-upon price. Changes are made to the risk register during the contracting process, which reflect the specific risks of each seller.
- **Stakeholder register**.

12.3 Control Procurements

Managing procurement relationships, monitoring contract performance and making changes and corrections as appropriate.

- This process consists of assuring that the performance of both parties in the contract meets contractual requirements.
- Monitoring the vendor's performance and ensuring that all the requirements of the contract are met.
- Contracts are legal relationships, so it is important that legal and contracting professionals be involved in administering contracts.

12.3 Control Procurements



12.3 Control Procurements

5. Approved change requests

Approved change requests can include modifications to the terms and conditions of the contract, including the procurement statement of work (SOW), pricing, and descriptions of the products, services, or results to be provided.

- All procurement-related changes are formally documented in writing and approved before being implemented through the Control Procurements process.
- In complex projects and programs, change requests may come from sellers involved with the project that can influence other involved sellers. The project should have the capability of identifying, communicating, and resolving changes that impact the work of multiple sellers.

12.3 Control Procurements

2. Claims administration

Contested changes and potential constructive changes are those requested changes where the buyer and seller cannot reach an agreement on compensation for the change or cannot agree that a change has occurred. These contested changes are called **claims**. When they cannot be resolved, they become disputes and finally appeals.

- Claims are documented, processed, monitored, and managed throughout the contract life cycle, usually in accordance with the terms of the contract.
- If the parties themselves do not resolve a claim, it may have to be handled in accordance with ***alternative dispute resolution*** (ADR) typically following procedures established in the contract.
- Settlement of all claims and disputes through negotiation is the preferred method.
- Claims can get nasty.

12.3 Control Procurements

2. Claims administration (Cont'd)

The following win in a dispute:

- *Contract language* over a *memo*, signed by both parties before the contract.
- Contract terms and *conditions* over *procurement statement of work* (depending on the level of precedence defined in the contract).
- *Common* definitions over *intended* meaning.
- *Industry* use of term over *common* use of the term.
- *Words* over *numbers*.
- *Special* provisions over *general* provisions.
- *Handwritten* comment on the contract over *typed-over wording* on the contract.
- *Detailed* terms over *general* terms.

12.3 Control Procurements

2. Claims administration (Cont'd)

Liquidated Damages - Definition

Damages agreed upon by the parties entering into a contract, to be paid by a party who breaches the contract to a non-breaching party. These are available when damages may be hard to foresee and must be a fair estimate of what the damages might be if there is a breach.

- Liquidated damages may be used when it would be hard to prove the actual harm or loss caused by a breach.
- The amount of liquidated damages must be a reasonable estimate of the actual damages that a breach would cause.
- *A contract term setting unreasonably large or disproportionate liquidated damages may be void because it constitutes a penalty or punishment for default.*

12.3 Control Procurements

3. Data analysis

Data analysis techniques that can be used include:

- **Performance Reviews**. Performance reviews for contracts measure, compare, and analyze quality, resource, schedule, and cost performance against the agreement. This includes identifying work packages that are ahead or behind schedule, over or under budget, or have resource or quality issues.
- **Earned Value Analysis (EVA)**. Schedule and cost variances along with schedule and cost performance indexes are calculated to determine the degree of variance from target.
- **Trend Analysis**. Trend analysis can develop a forecast estimate at completion (EAC) for cost performance to see if performance is improving or deteriorating.

12.3 Control Procurements

4. Inspection

An inspection is a structured review of the work being performed by the contractor. This may involve a simple review of the deliverables or an actual physical review of the work itself.

- On a construction/engineering/infrastructure project, inspections involve *walkthroughs* of the site by both the buyer and the contractor to ensure a mutual understanding of the work in progress.

5. Audits

Audits are a structured review of the procurement process. Rights and obligations related to audits should be described in the procurement contract.

- Resulting audit observations should be brought to the attention of the buyer's PM and the seller's PM for adjustments to the project, when necessary.

12.3 Control Procurements

1. Closed procurements

The buyer, usually through its authorized procurement administrator, provides the seller with formal written notice that the contract has been completed.

- Requirements for formal procurement closure are usually defined in the terms and conditions of the contract and are included in the procurement management plan.
- Typically, all deliverables should have been provided on time and meet technical and quality requirements, there should be no outstanding claims or invoices, and all final payments should have been made.
- The PMT should have approved all deliverables prior to closure.

12.3 Control Procurements

2. Procurement documents updates

Procurement documentation that may be updated includes the contract with all supporting schedules, requested unapproved contract changes, and approved change requests.

Procurement documentation also includes any seller-developed technical documentation and other work performance information such as:

- ✓ Deliverables,
- ✓ Seller performance reports and warranties,
- ✓ Financial documents including invoices and payment records,
- ✓ The results of contract-related inspections.

12.3 Control Procurements

7. Organizational process assets

OPA that can be updated include:

- **Payment schedules and requests**. All payments should be made in accordance with the procurement contract terms and conditions.
- **Seller performance evaluation documentation**. It is prepared by the buyer and documents the seller's ability to continue to perform work on the current contract, indicates whether the seller can be allowed to perform work on future projects, or rates how well the seller is performing the project work or has performed in the past.
- **Prequalified seller lists updates**. Prequalified seller lists are lists of potential sellers who are previously qualified (approved). These lists will be updated according to the *Control Procurement* process outcomes because sellers could be disqualified and removed from the lists based on poor performance…

12.3 Control Procurements

7. Organizational process assets (cont'd)

- …
- **Lessons learned repository**. Lessons learned should be archived in the lessons learned repository to improve procurements on future projects. At the end of a contract, the actual results of the procurement are compared with the projected results in the original *procurement management plan*. These lessons learned state whether the project objectives were achieved and, if not, provides the reasons they were not.
- **Procurement file**. A complete set of indexed contract documentation, including the closed contract, is prepared for inclusion with the final project files.

Thank you

Knowledge area

- You can find the whole Project Management Professional course on Z:\eLibraries\eBooks\Management\PMP 6 Course
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